

What is claimed is:

1. In a gaming machine including a master gaming controller,
a display device and a memory device, a method of playing a game of
5 chance, the method comprising:

receiving a wager for one or more games of chance controlled by
the master gaming controller on the gaming machine;

determining a game outcome for each of the one or more games of
chance;

- 10 rendering one or more two-dimensional images derived from a
three-dimensional object in a three-dimensional gaming environment
stored in the memory device on the gaming machine; and

displaying the one or more rendered two-dimensional images to
the display device on the gaming machine.

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2. The method of claim 1, further comprising:

rendering a game outcome presentation for at least one of the
games of chance in the 3-D gaming environment and capturing the game
outcome presentation on the one or more two-dimensional images.

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3. The method of claim 1, further comprising:

rendering a plurality of game outcome presentations in the 3-D
gaming environment and capturing two or more of the game outcome
presentations on at least one of the two-dimensional images.

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4. The method of claim 1, further comprising:

rendering a gaming machine maintenance operation in the 3-D
gaming environment and capturing the gaming machine maintenance
operation on the one or more two-dimensional images.

6. The method of claim 1, further comprising:
rendering a gaming machine operational feature in the 3-D gaming environment and capturing the gaming machine operation feature on the one or more two-dimensional images.

7. The method of claim 6, wherein the gaming machine operational feature is selected from the group consisting of inserting a player tracking card in a card reader on the gaming machine, entering an identification code on the gaming machine, pressing an input button on the gaming machine, inserting a printed ticket in a bill validator on the gaming machine and using an electronic key with a gaming device connected to the gaming machine.

8. The method of claim 1, further comprising:
20 rendering an attract mode feature in the 3-D gaming environment
and capturing the attract mode feature on the one or more two-
dimensional images wherein the attract mode feature is at least one of
advertising, upcoming events, entertainment services and food services.

9. The method of claim 1, further comprising:
rendering a promotional feature in the 3-D gaming environment
and capturing the promotional feature on the one or more two-
dimensional images.

10. The method of claim 1, further comprising:
rendering casino information in the 3-D gaming environment and
capturing the casino information on the one or more two-dimensional
5 images.

11. The method of claim 1, further comprising:
rendering a bonus game presentation in the 3-D gaming
environment and capturing the bonus game presentation on the one or
10 more two-dimensional images.

12. The method of claim 1, wherein the three-dimensional
position of the 3-D object is time varying.

13. The method of claim 12, wherein a rate of movement of the
three-dimensional position of the 3-D object is time varying.
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14. The method of claim 12, wherein the three-dimensional
position of the 3-D object changes at least one of continuously, non-
continuously and combinations thereof.
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15. The method of claim 1, further comprising:
receiving an input signal to change the three-dimensional position
of the 3-D object.
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16. The method of claim 15, wherein the three-dimensional
position of the 3-D object is changed to enlarge a feature in the 3-D
gaming environment displayed on the display device.

17. The method of claim 1, further comprising:
displaying simultaneously a portion of a rendered two-dimensional
image on a first display device on the gaming machine and the portion
of the rendered two-dimensional image on a second display device on
5 the gaming machine.

18. The method of claim 1, further comprising:
displaying simultaneously a first portion of a rendered two-
dimensional image on a first display device on the gaming machine and a
10 second portion of the rendered two-dimensional image on a second
display device on the gaming machine.

19. The method of claim 1, further comprising:
displaying simultaneously a rendered two-dimensional image on a
15 display device on a first gaming machine and the rendered two-
dimensional image on a display device on a second gaming machine.

20. The method of claim 1, further comprising:
rendering a first two-dimensional image derived from a first three
20 dimensional object in the 3-D gaming environment;
rendering a second two-dimensional image derived from a second
three dimensional object in the 3-D gaming environment;
displaying simultaneously said first rendered two-dimensional
image and said second rendered two-dimensional image on one or more
25 display devices on the gaming machine.

21. The method of claim 1, further comprising:
rendering a first two-dimensional image derived from a three
dimensional object in a first gaming environment;

rendering a second two-dimensional image derived from a three-dimensional object in a second gaming environment;

displaying simultaneously said first rendered two-dimensional image and said second rendered two-dimensional image on one or more
5 display devices on the gaming machine.

22. The method of claim 1, further comprising:

rendering a first two-dimensional image derived from a first three dimensional object in the 3-D gaming environment;

10 rendering a second two-dimensional image derived from a second three dimensional object in the 3-D gaming environment;

displaying simultaneously said first rendered two-dimensional image on one or more display devices located on a first gaming machine and said second rendered two-dimensional image on one or more display
15 devices on a second gaming machine.

23. The method of claim 22, wherein the first rendered two-dimensional image displayed on the first gaming machine and the second rendered two-dimensional image displayed on the second gaming
20 machine are used by two game players, one on the first gaming machine and one on the second gaming machine, to play a game against each other.

24. The method of claim 22, wherein the first rendered two-dimensional image displayed on the first gaming machine and the second
25 rendered two-dimensional image displayed on the second gaming machine are used by two game players, one on the first gaming machine and one on the second gaming machines, to share a bonus game.

25. The method of claim 1, wherein the gaming environment comprises one or more 3-D object models defined by a plurality of surface elements.

5 26. The method of claim 25, wherein at least one of the 3-D object models is a 3-D model of a slot reel.

27. The method of claim 25, wherein at least one of the 3-D object models is a 3-D model of a gaming machine.

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28. The method of claim 25, wherein the one or more 3-D object models is a 3-D model of a casino.

29. The method of claim 25, wherein the position of at least one
15 of the 3-D object models is time varying.

30. The method of claim 25, wherein at least one of the 3-D object models is at least one of an animated 3-D model of a person or a 3-D model of a fictional character.

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31. The method of claim 1, wherein the game of chance is selected from the group consisting of a slot game, a keno game, a poker game, a pachinko game, a video black jack game, a bingo game, a baccarat game, a roulette game, a dice game and a card game.

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32. The method of claim 1, further comprising:
receiving an input signal to initiate one or more games of chance.

33. The method of claim 1, further comprising:

receiving a wager for a first game and receiving a wager for a second game; and

rendering a game outcome presentation for said first game and said second game in the 3-D gaming environment;

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34. The method of claim 1, further comprising:

receiving one or more input signals containing information used to play the game of chance.

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35. The method of claim 1, further comprising:

receiving one or more input signals containing information used to select a 3-D gaming environment for the game of chance.

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36. The method of claim 35, further comprising:

displaying a menu of games of chance available on the gaming machine;

receiving one or more inputs signals containing information used to select one or more of games of chance listed on said menu.

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37. The method of claim 1, wherein a rendered two-dimensional image displayed to the display device provides at least one of a perspective view, a multiple perspective view, an orthographic view or combinations thereof.

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38. The method of claim 1, further comprising:

generating an animated surface texture in the 3-D gaming environment.

39. The method of claim 38, wherein the animated surface texture is a movie.

40. The method of claim 1, wherein the game of chance is
5 multiple hands of a card game presented simultaneously.

41. The method of claim 40, wherein the multiple hands of the card game are between 1 hand of poker to 1000 hands of poker.

42. The method of claim 1, further comprising:
rendering a first two-dimensional image derived from a three-
object in a three-dimensional gaming environment stored in the memory
device on the gaming machine;
rendering a second two-dimensional image derived from a three-
15 dimensional object in the three-dimensional gaming environment stored
in the memory device on the gaming machine;
combining the first two-dimensional image and the second two-
dimensional image into a third image;
displaying the third two-dimensional image to the display device
20 on the gaming machine.

43. The method of claim 1, further comprising:
storing one or more of the rendered two-dimensional images to a
memory device located on the gaming machine.

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44. The method of claim 43, wherein the stored two-dimensional images are used to provide a game history.

45. The method of claim 1, further comprising:

rendering a first two-dimensional image derived from a first three-dimensional object in a three-dimensional gaming environment stored in the memory device on the gaming machine;

rendering a second two-dimensional image derived from a second
5 three-dimensional object in a three-dimensional gaming environment stored in the memory device on the gaming machine;

generating a sequence of two-dimensional images wherein the first rendered two-dimensional image appears to morph into the second rendered two-dimensional image during said sequence.

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46. A method of generating a game of chance played on a gaming machine, the method comprising:

selecting one or more game events in a game of chance that are represented visually on the gaming machine;

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generating a visual storyboard for each game event;

generating one or more 3-D gaming environments designed or configured to present the visual storyboard for each game event;

filming each visual storyboard in the one or more 3-D gaming environments using a virtual camera; and

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rendering a sequence of 2-D images derived from 3-D objects in the one or more 3-D gaming environments

wherein the 3-D coordinates of each 3-D object in the sequence of images is defined by a position of virtual camera in the one or more 3-D gaming environments.

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47. The method of claim 46, wherein the game of chance is selected from the group consisting of a slot game, a keno game, a poker game, a pachinko game, a video black jack game, a bingo game, a baccarat game, a roulette game, a dice game and a card game.

48. The method of claim 46, further comprising:
selecting a sequence of positions of the virtual camera in the one
or more 3-D gaming environments used to film the visual storyboard.

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49. The method of claim 48, wherein the sequence of positions
of the virtual camera is controlled by a player operating the gaming
machine.

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50. The method of claim 46, further comprising:
displaying the sequence of 2-D images on a display device on the
gaming machine.

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51. The method of claim 46, wherein the one or more 3-D
gaming environments comprise one or more 3-D object models and
wherein each 3-D object model is defined by a plurality of surface
elements.

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52. The method of claim 51, wherein at least one of the 3-D
object models is a 3-D model of a slot reel.

53. The method of claim 51, wherein at least one of the 3-D
object models is a 3-D model of a gaming machine.

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54. The method of claim 51, wherein the one or more 3-D
object models is a 3-D model of a casino.

55. The method of claim 51, wherein the position of at least one
of the 3-D object models is time varying.

56. A gaming machine comprising:

a master gaming controller designed or configured to control one or more games of chance played on the gaming machine;

one or more virtual three-dimensional 3-D gaming environments available for rendering a game outcome presentation for the one or more games of chance;

game logic for rendering one or more two-dimensional images derived from a 3-D object in at least one of the 3-D gaming environments;

one or more display devices for displaying said game outcome presentations with said rendered one or more two-dimensional images.

57. The gaming machine of game 56, further comprising:

game logic designed or configured to draw a plurality of the game outcome presentations in the one or more 3-D gaming environments and to capture two or more of the game outcome presentations on at least one of the two-dimensional images.

58. The gaming machine of game 56, further comprising:

game logic designed or configured to draw a gaming machine maintenance operation in the one or more 3-D gaming environments and to capture the gaming machine maintenance operation on the one or more two-dimensional images.

59. The gaming machine of claim 56, further comprising:

game logic designed or configured to draw a gaming machine operational feature in the one or more 3-D gaming environments and to

capture the gaming machine operation feature on the one or more two-dimensional images.

60. The gaming machine of claim 59, wherein the gaming
5 machine operational feature is selected from the group consisting of
inserting a player tracking card in a card reader on the gaming machine,
entering an identification code on the gaming machine, pressing an input
button on the gaming machine, inserting a printed ticket in a bill
validator on the gaming machine, displaying an electronic fund transfer
10 transaction, displaying an alternate video presentation, using an
electronic key with a gaming device connected to the gaming machine..

61. The gaming machine of claim 56, further comprising:
game logic designed of configured to draw attract mode features in
15 the one or more 3-D gaming environment and to capture the attract mode
features on the one or more two-dimensional images.

62. The gaming machine of claim 56, further comprising:
game logic designed or configured to draw a promotional feature
20 in the one or more 3-D gaming environments and to capture the
promotional feature on the one or more two-dimensional images.

63. The gaming machine of claim 56, further comprising:
25 game logic designed or configured to draw casino information in
the one or more 3-D gaming environments and to capture the casino
information on the one or more two-dimensional images.

64. The gaming machine of claim 56, further comprising:

game logic designed or configured to draw a bonus game presentation in the one or more 3-D gaming environments and to capture the bonus game presentation on the one or more two-dimensional images.

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65. The gaming machine of claim 56, wherein a three-dimensional position of the 3-D object is time varying.

66. The gaming machine of claim 65, wherein a rate of movement of the three-dimensional position of the 3-D object is time varying.

67. The gaming machine of claim 65, wherein the three-dimensional position of the 3-D object changes at least one of continuously, non-continuously and combinations thereof.

68. The gaming machine of claim 56, further comprising:
an input mechanism designed or configured to receive an input signal used to change a three-dimensional position of 3-D object.

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69. The gaming machine of claim 68, wherein the input mechanism is selected from the group consisting of a key pad, a touch screen, a mouse, a joy stick, a microphone and a track ball.

70. The gaming machine of claim 68, wherein the three-dimensional position of the 3-D object is changed to enlarge a feature in the 3-D gaming environment displayed on said one or more display devices.

71. The gaming machine of claim 56, further comprising:
an input mechanism designed or configured to receive one or more
input signals containing information used to select a 3-D gaming
environment for the game outcome presentation of a game of chance.

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72. The gaming machine of claim 56, further comprising:
a graphical processing unit, separate from said master gaming
controller, designed or configured to execute the graphical operations
used to render one or more two-dimensional images derived from the 3-
10 D object in the 3-D gaming environment.

73. The gaming machine of claim 56, further comprising:
a first display device designed or configured to display a rendered
two-dimensional image from a first gaming environment and a second
15 display device designed or configured to display simultaneously a
rendered two-dimensional image from a second gaming environment.

74. The gaming machine of claim 56, further comprising:
a network interface board designed or configured to allow the
20 master gaming controller to communicate with a remote display device.

75. The gaming machine of claim 74, wherein said rendered one
or more two-dimensional images are displayed on the remote display
device.

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76. The gaming machine of claim 74, wherein the master
gaming controller communicates with the remote display device via at
least one of a local area network, a wide area network and the Internet.

77. The gaming machine of claim 56, wherein the game of chance is selected from the group consisting of a slot game, a keno game, a poker game, a pachinko game, a video black jack game, a bingo game, a baccarat game, a roulette game, a dice game and a card game.

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78. The gaming machine of claim 56, wherein the game of chance is multiple hands of a card game presented simultaneously.

79. The gaming machine of claim 56, wherein the multiple
10 hands of the card game are between 1 hand of poker to 1000 hands of poker.

80. The gaming machine of claim 56, further comprising:
an input mechanism designed or configured to receive an input
15 signal used to change a three-dimensional position of the 3-D object in the three-dimensional gaming environment.

81. The gaming machine of claim 56, further comprising:
game logic for rendering a two-dimensional image derived from a
20 3-D object in a 3-D game interface model stored in a memory device on the gaming machine wherein the 3-D game interface model comprises a plurality of 3-D game windows modeled on one or more 3-D surfaces in the 3-D game interface model.

82. The gaming machine of claim 81, wherein game window
25 content is rendered in each of the plurality of 3-D game windows and the game window content is selected from the group consisting of a game of chance, a bonus game, an advertisement, news, stock quotes, electronic mail, a web page, a message service, a locator service or a hotel/casino

service, a movie, a musical selection, a casino promotion, a broadcast event, a maintenance operation, a player tracking service, a drink menu and a snack menu

5 83. The gaming machine of claim 56, further comprising:
game logic for determining the selection of input buttons modeled
in a 3-D gaming environment.

10 84. The gaming machine of claim 56, further comprising:
a plurality of display devices wherein each display device is
designed to display simultaneously a portion of a rendered two-
dimensional image.

15 85. The gaming machine of claim 84, wherein video feeds for
each of the plurality of display devices is provided from a single video
card.

20 86. The gaming machine of claim 56, further comprising:
gaming logic for commanding a remote gaming device to render
one or more two-dimensional images derived from a 3-D object in at
least one of the 3-D gaming environments stored on the remote gaming
device and to display said rendered one or more two-dimensional images
on a display located on the remote gaming device.

25 87. The gaming machine of claim 56, further comprising:
a multi-headed video card.

88. The gaming machine of claim 87, wherein a first head on
the multi-headed video is used to render one or more two-dimensional

images derived from a 3-D object in at least one of the 3-D gaming environments and a second head on the multi-head video card is used to render one or more two-dimensional images derived from a 3-D object in at least one of the 3-D gaming environments.

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89. The gaming machine of claim 88, wherein rendered two-dimensional images from the first head and rendered two-dimensional images from the second head are displayed simultaneously on the same display.

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90. The gaming machine of claim 88, wherein rendered two-dimensional images from the first head are displayed on a first display and rendered two-dimensional images from the second head are displayed simultaneously on a second display.

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91. In a gaming machine comprising a master gaming controller, a display device and a memory device, a method of playing a plurality games of chance, the method comprising:

receiving a single wager for a plurality of games of chance
20 controlled by the master gaming controller on the gaming machine;
determining a game outcome for each game of chance in the plurality games of chance;

rendering the plurality of games of chance in a three dimensional gaming environment stored in the memory device on the gaming
25 machine;

rendering a first two-dimensional image derived from a first 3-D object in the three-dimensional gaming environment wherein the first two-dimensional image comprises a first portion of the plurality of rendered games of chance;

displaying the first rendered two-dimensional image to the display device on the gaming machine;

rendering a second two-dimensional image derived from a second 3-D object in the three-dimensional gaming environment wherein the
5 second two-dimensional image comprises a second portion of the rendered plurality of games of chance;

displaying the second rendered two-image to the display device on the gaming machine.

10 92. The method of claim 91, further comprising:
receiving a wager for each of the plurality of games of chance.

93. The method of claim 91, further comprising:
rendering a sequence of two-dimensional images derived from 3-D
15 objects in the three-dimensional gaming environment wherein three-dimensional positions of the 3-D objects in the sequence appear to vary continuously between a three-dimensional position of a first 3-D object and a three-dimensional position of a second 3-D object.

20 94. The method of claim 91, further comprising:
selecting a first game of chance in the first portion of the plurality of rendered games of chance;
making a wager on the first game of chance;
25 initiating the first game of chance;
selecting a second game of chance in the second portion of the plurality of rendered games of chance;
making a wager on the second game of chance; and
initiating the second game of chance.

95. The method of claim 91, wherein the plurality of games of chance are multiple hands of a card game presented simultaneously.

5 96. The method of claim 95, wherein the multiple hands of the card game are between 1 hand of poker to 1000 hands of poker.

97. The method of claim 91, wherein the game of chance is selected from the group consisting of a slot game, a keno game, a poker
10 game, a pachinko game, a video black jack game, a bingo game, a baccarat game, a roulette game, a dice game and a card game.

98. The method of claim 91, further comprising:
receiving an input signal to initiate at least one game of chance in
15 the first portion of the plurality of rendered games of chance; and
rendering a game outcome presentation for the at least one game of chance.

99. The method of claim 98, further comprising:
20 rendering a bonus game for the at least one game of chance.

100. The method of claim 91, further comprising:
receiving an input signal to initiate at least one game of chance in
the second portion of the plurality of rendered games of chance; and
25 rendering a game outcome presentation for the at least one game of chance.

101. The method of claim 100, further comprising:
rendering a bonus game for the at least one game of chance.

102. In a gaming machine comprising a master gaming controller, a display device and a memory device, a method of displaying a plurality game windows on the display device wherein at least one of the game windows is used to present a game of chance, the method comprising:

generating a plurality of 3-D game windows arranged in a 3-D game interface model wherein the 3-D game interface model comprises a 3-D geometric surface description for each of the plurality of game windows;

mapping game window content to each of the 3-D game windows rendering game window content to each of the 3-D game windows;

rendering a two-dimensional image derived from a three-dimensional object in the 3-D game interface model stored in the memory device on the gaming machine; and

displaying the rendered two-dimensional image to the display device on the gaming machine.

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103. The method of claim 102, further comprising:
activating the one or more 3-D game windows.

104. The method of claim 103, further comprising:
receiving an input signal to initiate a game of chance in one or more of the active 3-D game windows.

105. The method of claim 102, further comprising:
rotating the 3-D game interface model.

106. The method of claim 102, further comprising:
presenting a game of chance in one or more of the game windows.

5 107. The method of claim 102, further comprising:
 updating the game window content in one or more of the game
 windows while presenting the game of chance in at least one of the game
 windows.

10 108. The method of claim 102, further comprising:
 rendering first game window content in a first 3-D game window;
 rendering second game window content in a second 3-D game
 window;
 rendering the first game window content in the second 3-D game
15 window; and
 rendering the second game window content in the first 3-D game
 window.

20 109. The method of claim 102, wherein the game window
 content is selected from the group consisting of a game of chance, a
 bonus game, an advertisement, news, stock quotes, electronic mail, a
 web page, an instant message service, a locator service or a hotel/casino
 service, a movie, a live-video feed, a musical selection, a casino
 promotion, a broadcast event, a maintenance operation, a player tracking
25 service, a drink menu and a snack menu.

 110. The method of claim 102, wherein the game of chance is
 selected from the group consisting of a slot game, a keno game, a poker

game, a pachinko game, a video black jack game, a bingo game, a baccarat game, a roulette game, a dice game and a card game.

111. The method of claim 102, wherein at least one game
5 window on the gaming machine is used to play a game against another game player and wherein said another game play plays the game on a second gaming machine.

112. The method of claim 102, wherein the gaming machine and
10 the second gaming machine are connected via at least one of a local area network, a wide area network, the Internet or combinations thereof.

113. The method of claim 102, wherein at least one game
15 window is used to share a bonus game with a group of game players each game player playing a different gaming machine.

114. The method of claim 102, wherein the different gaming
20 machines for each game player in the group of game players is connected via at least one of a local area network, a wide area network, the Internet or combinations thereof.

115. The method of claim 102, rendering a two-dimensional
25 image derived from a 3-D object in a three-dimensional gaming environment stored in the memory device on the gaming machine to a 3-D game window in the 3-D game interface model.

116. In a gaming machine comprising a master gaming controller, a display device and a memory device, a method of displaying game information in a game window, the method comprising:

generating a game window with a first size;

5 rendering a first two-dimensional image derived from a three-dimensional object in a three-dimensional gaming environment stored in the memory device on the gaming machine to fit within the first size of the game window;

10 displaying on the display device the rendered first two-dimensional image within the game window;

changing the game window to a second size;

15 rendering a second two-dimensional image derived from the 3-D object in the three-dimensional gaming environment stored in the memory device on the gaming machine to fit within the second size of the game window; and

displaying on the display device the rendered second two-dimensional image within the game window

wherein the game information is used to play a game of chance on the gaming machine.

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117. The method of claim 116, further comprising:

wherein the second size of the game window is smaller than the first size of the game window;

25 generating one or more new game windows in a game window area around the game wherein the game window area is a difference in area between an area of the first size of the game window and an area of the second size of the game window; and

displaying game information in the one or more new game windows.

118. The method of claim 117, further comprising:
removing the new one or more new game windows; and
returning the game window to the first size.

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119. The method of claim 116, further comprising:
rendering a sequence second two-dimensional images derived
from the 3-D object in the three-dimensional gaming environment stored
in the memory device on the gaming machine wherein each two-
dimensional image in the sequence is sized to fit within a sequence of
game windows between the first size and the second size.

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120. The method of claim 116, wherein at least one of the
rendered two-dimensional images is used to provide a game history.

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121. In a gaming machine comprising a master gaming
controller, a display device and a memory device, a method of activating
an input button modeled in a 3-D gaming environment and displayed on
the display device:

generating one or more 3-D object models of input buttons in a 3-
D gaming environment used to play a game of chance on the gaming
machine;

rendering a two-dimensional image derived from a three-
dimensional object in a three-dimensional gaming environment stored in
the memory device on the gaming machine wherein the three-
dimensional object comprises at least a portion of one or more the input
buttons modeled in the 3-D gaming environment;

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displaying the rendered two-dimensional projection surface to the
display device on the gaming machine;

receiving an input signal including at least an input location
corresponding to a location on the display device displaying the rendered
two-dimensional image;

- generating an input line in the 3-D gaming environment using the
5 input location; and
detecting a collision between the input line and at least one of an
input button modeled in the 3-D gaming environment.

122. The method of claim 121, further comprising:
10 comparing 3-D coordinates of the input line in the gaming
environment to 3-D coordinates of input buttons modeled in the 3-D
gaming environment.

123. The method of claim 121, further comprising:
15 performing an action specified by an input button corresponding to
the received input location.

124. The method of claim 121, further comprising:
activating one or more input buttons modeled in the 3-D gaming
20 environment.

125. The method of claim 124, further comprising:
ignoring a detected collision between the input line and an input
button, when the input button is not activated.

- 25 126. The method of claim 121, wherein the input signal is
generated from a touch screen.

127. The method of claim 121, wherein the input location on the display device corresponds to a cursor location on the display device.

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FIG. 10